

W5YI

Nation's Oldest Ham Radio Newsletter

REPORT

Up to the minute news from the world of amateur radio, personal computing and emerging electronics. While no guarantee is made, information is from sources we believe to be reliable. May be reproduced providing credit is given to The W5YI Report.

Fred Maia, W5YI, Editor, P.O. Box 565101, Dallas, TX 75356-5101
Tel. 817-461-6443 Electronic mail: 351-1297@mcimail.com

★ In This Issue ★

FM Broadcast Pirate Fined...
FCC Downsizing, 230 Jobs Axed!
Field Offices to Restructure in 1996
Commercial Radio Exam Info
AMSAT Needs a Machinist!
Casino, Horse Race and Sports Book
...Betting From your Home!
Broadcasting Without A License
Buying a New Personal Computer
Consumer On-Line News
Information Warfare Tactics!
More on Electronic Banking
Windows-95 and MSN Debut
Inside Story on Netscape Comm.
...and much much more!

Vol. 17, Issue #17

\$1.50

PUBLISHED TWICE A MONTH

September 1, 1995

Broadcast Radio Pirate Fined \$10,000 - Stays on the Air!!

Stephen P. Dunifer seems to think that the radio waves are public property and that he has a First Amendment right to use them under his terms. It all started in April 1993 when the FCC's San Francisco Field Office received information that an unauthorized FM radio transmitter was operating on 88.1 MHz in the San Francisco Bay area.

An investigation showed that Dunifer was operating a broadcast station for three hours every Sunday evening from a Berkeley hillside on an unused frequency set aside for non-commercial educational FM broadcasting. His portable station consisted of a 10-foot antenna pushed into the earth and a home-brew five-watt radio transmitter wired to his car battery. Free Radio Berkeley's broadcasts were basically free-wheeling political commentary and music.

On June 1, 1993, the FCC responded by issuing a Notice of Apparent Liability against Free Radio Berkeley for \$20,000. Dunifer's lawyers responded to the NAL by charging that the Commission had a policy of licensing only the rich. "Technology currently exists to allow thousands of Americans to have access to the airwaves in ways that could assure their democratic use and a meaningful voice in the democratic process," they said. "...the FCC must construct and enforce its regulatory framework in such a way as to safeguard the First Amendment right of free speech for all persons, regardless of their economic

power."

While it is true that non-licensed, low-power wireless microphones may use frequencies between 88 and 108 MHz under Part 15 rules, their field strength can not exceed 250 microvolts per meter at 3 meters. Dunifer's radio operation greatly exceeded that level.

Furthermore, according to the FCC, the Free Radio Berkeley (FRB) operation supposedly caused interference to radio stations KQED-FM, San Francisco and KECG-FM, El Cerrito, CA. Dunifer denied that charge and a supporting group (the National Lawyers Guild) filed a Freedom of Information Act request for details on the alleged interference. FOIA requires federal agencies to make public their records except for those falling within specified exemptions.

The FCC denied the FOIA request and said that the complaints were made in person or by telephone and that no documents or other records were compiled. And even if there were records, the individuals responsible for the complaints had requested confidentiality.

Dunifer began making FM radio transmitting kits available to others and, by last year, several hundred FM radio stations part-time stations began popping up around the country. Free Radio Berkeley now offers a complete line of kits which enable anyone with some degree of technical skill to assemble their own transmitters. A complete FM broadcast station can be put on the air for

less than \$1000 compared to the \$50,000 to \$100,000 under FCC guidelines. Workshops and training are offered along with a growing list of technical mentors to aid in the creation of micro power broadcasting stations.

Dunifer goes underground

After getting the NAL, Dunifer resumed his Sunday night broadcasts from hidden locations. The New York Times even reported that Free Radio Berkeley was carrying public service messages for the Unitarian Church.

When Dunifer continued the broadcasts, the FCC filed a separate lawsuit in federal court for an injunction against further FRB broadcasts. If issued, an injunction would have put the full weight of the government against FRB, probably preventing further broadcasts.

The U.S. Attorney charged that the unlicensed transmissions "...cause chaos in the radio spectrum, interfere with properly licensed broadcasting stations and potentially endanger public and aircraft safety." Further noted was the fact that Dunifer had never asked that the rules be changed to establish low power broadcasting.

Dunifer's attorney (Louis N. Hiken) filed an opposition to the injunction saying "There is no emergency in this case. ...If there were truly any immediate threat of injury or harm to anybody, why did they wait for over 18 months to bring it to this court's attention?" Hiken said "There are micro radio broadcasters all over the country challenging the FCC's authority to limit the issuance of radio licenses to only wealthy commercial broadcasters."

The traditional justification for FCC regulation is that there are a scarce number of frequencies available on the radio dial and that the FCC must regulate to prevent stations from interfering with each other.

Speaking at the January 20, 1995 court hearing for the injunction against Free Radio Berkeley, FCC lawyer David Silberman argued that "All [previous] cases support us, Your Honor. ...In every case where an injunction has been requested by the Government to prevent unlawful, unlicensed broadcasting, the District Court has granted the injunction. There is no case that we are aware of -- and the Defendant cites none -- where a District Court has been asked to issue an injunction and the Government has proved an unlicensed radio operation where the Government has been denied that injunction."

"And there's a very good reason for that," he said. Unlicensed broadcasting creates chaos on the airwaves. It's anarchy on the airwaves. And to allow and not to enjoin this kind of operation, the Court should consider that in doing so it encourages continuing violations not only by the Defendant, but by those who

would also see this as a signal that the law is not going to be enforced."

Dunifer's lawyers again raised constitutional arguments against the injunction. The FCC asserted that it merely had to prove (1) that Dunifer had no license to broadcast and (2) that he had made broadcasts nonetheless. Even Dunifer's lawyers admitted to this. Dunifer's lawyers argued, however, that the injunction should not issue because the FCC regulations were unconstitutional. They made it impossible for Dunifer to seek a license for micro radio broadcasts.

Judge refuses to issue injunction

In what can only be termed a shocking January 30, 1995 opinion, federal judge Claudia Wilken considered the constitutional issues raised by defendant Stephen Dunifer of Free Radio Berkeley and declined to grant an injunction against FRB.

The judge agreed that the complete ban on micro power radio (the FCC does not issue licenses for stations with less than 100 watts of power) is unconstitutional. This was the first instance of a federal court failing to grant the government an injunction to prevent unlicensed broadcasting.

The immediate and dramatic result is that Radio Free Berkeley is now openly broadcasting 24 hours a day on 104.1 MHz from a location in Oakland without a license. And for the moment, there is nothing the government can do to stop it. Gone are the days when the radio station had to be forever moved to evade detection.

The FCC presumably knows exactly where the station is. With a stable studio location, a diverse group of folks put on creative and radical shows and take calls over the studio phone line. The station is community based, alternative and participatory.

Calling micro power stations as 'leaflets of the airwaves,' Hiken said that "...instead of shutting down small operators, the United States ought to make regulations similar to Canada's." He said "...the Canadian government allows micro-power transmissions but monitors them to make sure they don't interfere with mainstream broadcasts."

Micro Radio Legalized in Japan

And according to a 1993 article in *Radio World*, the Japanese government has moved to deregulate low-power FM radio stations. According to *Radio World*:

"Low-wattage FM radio stations, what the Japanese call 'community FM,' is the latest move toward deregulation by the staunchly bureaucratic Japanese government. The licensing requirement for 1 to 10 watt FM transmitters is being eased and radio stations

are expected to be popping up all over the country.

Community FM is bringing a level of individuality to broadcasting that Japan has never seen. Unlike established radio stations that try to please all tastes, the low-wattage FM stations are doing all sorts of things the large stations would never dream of."

Previously, a loophole in Japan broadcast regulations permitted unlicensed 1 watt FM broadcasts provided that the station did not interfere with other broadcast signals. Because of the Japanese government's new policy, many of these Mini-FM stations are expected to upgrade to full time Community FM stations.

The *Radio World* article goes on to state that "...companies like Teac and Sony are starting to offer Community FM sets which are small, low cost broadcast kits that include everything from the transmitter to CD players. Because of their government's new broadcast policy, it is likely that Japan will soon possess more radio stations, and greater content diversity, than any other nation."

Dunifer garnering headlines everywhere!

The August 1995 issue of *"Wired"* magazine carries a story about Dunifer entitled "Radio Is My Bomb." It said, "As a preteen in Kentucky, Dunifer was interested in Electronics. By age 17, he had earned his first-class radio telephone license, knowledge that eventually helped Dunifer build a series of sophisticated, portable low-power radio transmitters. He started out broadcasting at rallies and demonstrations. Two years ago, Dunifer founded Free Radio Berkeley." The article says that Dunifer runs about 30 to 40 watts.

"So for now, the station remains on the air through donations, the sale of micro power transmitters, and the help of an ever-changing staff of volunteer DJs. Because there is no 'management,' programming is solely determined by the volunteers. This anarchic setup guarantees controversy. In addition to solid community information, listeners can also hear 'dirty' words, inflammatory rhetoric, strong sexual content, and wacko conspiracy theories. Complainers are told if they don't like what's on Free Radio Berkeley, they can start their own station." This attitude could be their downfall.

"Dunifer's concept of community radio is that everyone should be free to have a voice. To that end, the station sells do-it-yourself transmitter kits." Free Radio Berkeley information is available from telephone: 510/464-3041.

Cloud on the Horizon for FRB

But now another possibility exists where the FCC might be able to close down FRB. An argument could be raised that the public interest is being "harmed" by FRB's "indecent and obscene" language on the air.

The FCC may argue that "children" can get the broadcasts and that this harm, even in the absence of interference, justifies an injunction.

FCC Reduces Forfeiture to \$10,000

After much delay, on August 3, 1995 the FCC reduced Dunifer's \$20,000 forfeiture to \$10,000 for operating an FM Broadcast station without a license. The Commission said that there is a maximum fine of \$10,000 per violation per day of violation and "Mr. Dunifer was only charged for one violation."

The FCC further said that Dunifer's claims that his rights were violated "...can be appealed through a trial in the U.S. District court with the opportunity for a hearing and cross-examination."

The case now goes back to federal judge Claudia Wilken who refused the FCC's motion for an injunction to silence Free Radio Berkeley. Another hearing/status conference is scheduled for Friday, Sept. 22, 1995 in Oakland Federal District Court.

Luke Hiken, attorney for Free Radio Berkeley and Stephen Dunifer, commented, "In spite of the Court's request for guidance, the FCC's opinion reasserts the Commission's commitment to represent solely the interests of corporate media monopolies. They explicitly acknowledge that minorities and the poor do not have a representative voice on the air waves and, yet, indicate that such a state of affairs is in the "public interest." In the meantime, Free Radio Berkeley continues on the air as a full time unlicensed FM broadcast station.

FCC DOWNSIZING HITS MONITORING NETWORK, LOCAL FIELD OFFICES - 230 AXED IN BUDGET FIX

FCC Chairman Reed Hundt announced August 17 that he is proposing significant cutbacks in FCC staff and facilities, especially in the Compliance and Information Bureau (CIB, formerly the Field Operations Bureau).

FCC staff overall would be reduced about 10%, or about 220 positions. The agency's 2,271 positions will be cut to 2,050 over the next year. Most of those reductions would come through attrition, retirement and buyout arrangements. About 50 employees will be terminated, however, the first in agency history.

"We have to deal with the reality which is Congress wants us to be smaller," Hundt said, noting that House and Senate legislation is expected to cut the agency's budget by \$40 million. H.R. 1869, the FCC Authorization Act of 1995 freezes the 1996 fiscal year budget at \$186 million, down from the requested \$223.6 million. The Senate has not yet acted. The legislation could, however, bring as many as 80 new

responsibilities to the FCC, a workload that Hundt called "enormous." He noted that the agency alone receives 14,000 messages a day through the Internet. Citing a court order, Hundt said the FCC could save \$20 million in 1996 if they were not forced to move its headquarters to a new location.

Due to deregulation, the Washington cuts will come primarily from the Cable Services and Mass Media Bureaus but the Office of Public Affairs, Office of Engineering and Technology and the Office of Managing Director are also affected. The Common Carrier Bureau will actually gain 50 jobs due to the pending rewrite of the Communications Act.

Nine CIB Field Offices would be closed by July 1996. All nine of the CIB's attended HF monitoring stations, and four monitoring posts within Field Offices, would be closed. The agency's Laurel/Columbia MD office - also the site of the FCC Laboratory and training classes - would control the leaner HF monitoring network.

CIB staff have developed sophisticated systems for operating remote unattended receivers and direction finders. We understand that this technology will be central to the revised HF monitoring system. "No monitoring function will be impaired," Hundt said.

In geographic areas without FCC Field Offices, but where needs for local technical support remain, the CIB expects to post two staff Resident Agents (RAs) equipped with monitoring capability (see list at end of story). RAs would report to the nearest FCC Field Office. They would not be available directly to licensees or the public unless directed.

"Sharp disagreement" over CIB staffing, functions

Commissioner James H. Quello was obviously concerned about the FCC reorganization. He communicated his concern to Chairman Hundt, but Hundt stated at a press conference that Quello "offered no suggestions."

"Unfortunately, I am concerned with the rushed timing in his administrative approach," Quello said. "I believe any reductions should have been discussed with Commissioners in advance of a one day notice, particularly while Congress is in recess and some Commissioners are on vacation."

"In my view, any reorganization of the Commission must take careful account of our core functions and assure that their integrity is not compromised. I am not sure the plan described today will achieve this, particularly in light of the sharp disagreement that has arisen over the staffing and functions of the field offices of our Compliance and Information Bureau."

"In my opinion, there are other areas for reductions that do not involve the vital local public service of

the CIB in numerous large cities. I will pay particularly close attention to assuring that those parts of the Commission that allocate the spectrum, safeguard its integrity, and license its use are not adversely impacted."

Hire an engineer to solve RFI

We asked Chairman Hundt if he was concerned about the reaction from licensees who expect help from local FCC offices, and who complain that interference enforcement cases are moving slowly.

Hundt answered the first part of our question only. He pointedly remarked that some spectrum users "expect a government employee to solve their interference when they could just as well hire an engineer to do it." He also discounted the role of non-technical FCC field staff, suggesting that they occupy their time in nonessential functions such as giving speeches to civic groups.

The FCC receives 25,000 RFI complaints a year. "If we multiplied our field staff tenfold, we still wouldn't have enough staff to respond to all the interference complaints," CIB chief Beverly Baker told us.

The FCC's Tampa office has launched a pilot program that would train and certify private service companies who will do the work now done by the FCC in interference response. Approximately forty representatives of manufacturers, publishers and trade associations attended the initial announcement in Tampa on July 19 (see August 1, 1995 W5YI Report).

This scheme would authorize private interference investigators, who could turn intractable or safety-threatening cases over to the FCC for resolution. A final report and recommendation by CIB's Interference Privatizing Team is expected in February.

A forthcoming Order now in preparation will detail the monitoring system consolidation and present the fundamentals of CIB's privatization proposals. Baker told us she hoped to have this item presented to the Commissioners during the week of August 21.

The plan involves a nationwide toll-free number for all complaints and requests to the FCC. Hundt said the national "call center" in Washington would handle consumer questions more efficiently than local FCC offices.

The FCC had once proposed to auction toll-free "800" numbers, and a reporter asked if the FCC would bid at auction to get a number. Chairman Hundt thought the idea was humorous, and said that the 800-number auction idea seemed to be "going nowhere."

Alaska by seaplane

A longtime field burden that the FCC is seeking to privatize or get legislative relief from, is its costly statutory requirement to inspect radio facilities on ships.

"We have to fly our field personnel on seaplanes to the remotest Alaskan locations so they can inspect ships there," Baker said.

We were surprised to learn that the Norfolk, VA FCC office will close. The Norfolk office was one of the more aggressive offices in the Amateur Service, having been the source of the major packet radio enforcement action several years ago. The Norfolk office also frequently got the job of destroying illegal radio equipment seized by FCC inspectors and the U.S. Marshals Service.

Australian visitor

The FCC's Los Angeles CIB office - one of those slated to remain open - recently received a visit from Ron Jenkins of Australia's Spectrum Management Agency for Radiocommunications. The FCC staff gave him a demonstration of direction finding capabilities, and provided him with information on interference cases in the land mobile, Amateur, CB and public safety services.

"He was impressed with the volume and complexity of work handled by the office," the CIB reported. "He noted, however, that in Australia, sanctions, fines and revocations were handled quickly, and that his agency was not in the business of warning their violators."

FCC Field Office Restructuring

Regional offices in Chicago, Kansas City and San Francisco will remain open. Atlanta, Boston and Seattle regional offices will close.

Field Offices to remain open: (17)

Atlanta	Boston	Chicago
Dallas	Denver	Detroit
Kansas City	Los Angeles	New Orleans
New York	Philadelphia	San Diego
San Francisco	Seattle	Tampa

Laurel/Columbia MD *Center, FCC National Automated Monitoring Network*
Powder Springs, GA *FCC Equipment Construction and Installation Branch*

Field Offices to close, but location staffed by RA's:

Anchorage	Buffalo	Honolulu
Houston	Miami	Norfolk
Portland	San Juan	St. Paul

Monitoring Stations to close:

Allegan MI	Belfast ME	Douglas AZ
Ferndale WA	Grand Island NE	Kingsville TX
Livermore CA	Powder Springs GA	Vero Beach FL

COMMERCIAL RADIO OPERATOR EXAMINATIONS

The FCC has finally nailed down the release dates on the new commercial radio operator license examination question pools.

<u>Elements:</u>	<u>Release Date:</u>	<u>Effective:</u>
7 & 9, GMDSS	Sep. 1, 1995	Dec. 1, 1995
1, 3 & 8, GROL/Radar	Oct. 1, 1995	Jan. 1, 1996
5 & 6, Radiotelegraph	Nov. 1, 1995	Feb. 1, 1996

These updates are the product of industry recommendations. The "release date" is the date that the FCC will make the question pools available to the public. Tests administered prior to the "effective date" will contain questions from the current pools. Examinations given on or after the "effective date" will contain only questions taken from the revised pools. All questions and answers for each pool will be available through the FCC's Internet web site.

The FCC has issued a report showing commercial radio operator testing activity for the first half of 1995.

1995.			6 mos.	12 mos.
<u>TOTAL</u>	<u>1Qtr95</u>	<u>2Qtr95</u>	<u>1995</u>	<u>1994</u>
<u>Number of Examinees by COLE Managers:</u>				
NRE (*)	955	1,084	2,039	3,718
Elkins	518	798	1,316	5,165
ETAI, Inc	281	451	732	1,270
NARTE	270	402	672	1,022
ISCET	216	282	498	879
Drake	264	361	615	775
Sylvan	239	243	482	736
Sea School	215	203	418	601
PCIA (**)	20	43	63	128
Examinees	2,968	3,867	6,835	14,289
Sessions	1,166	1,404	2,570	4,252

Commercial Operator License Examination Managers:

Elkins Institute Inc., *=National Radio Examiners (Div. W5YI Group, Inc.), Electronic Technicians Association International, Inc., National Association of Radio Telecommunications Engineers Inc., International Society of Certified Electronic Technicians, Drake Training and Technologies, Sylvan Learning Systems Inc., Sea School, **=Personal Communications Industry Association, formerly: National Association of Business and Educational Radio, Inc.

• **MACHINIST HELP WANTED** - AMSAT's Phase 3-D International Satellite Development Team has an urgent need for someone with the skills and access to equipment (Mill and Lathe) to produce an additional six separation mounts to be used for Phase 3-D's flight model and backup Specific Bearing Structures. The mounts are roughly block-shaped, 60x80x75mm and are made from 6061 aluminum. These are used to mate the Phase 3-D satellite to the P3D-SBS carrying structure. Those who may be able to help are asked to contact Dick Jansson, WD4FAB, VP Engineering, at "WD4FAB@AMSAT.ORG", or fax him at: 407-644-9782.

EMERGING TECHNOLOGY

● **Broadcasting without an FCC license! ABC Radio is testing their new ABC WWW RadioNet.** ABC, the first broadcaster to start a consumer cable service (ESPN), is also the first on the World Wide Web with real-time audio-on-demand. A trial group of 5000 listeners need a 486, Pentium or Macintosh computer with sound card, speakers and a minimum 14.4 baud modem. Web address is:

<http://www.abcradionet.com>

After the test period, ABC will begin selling advertising. Information on the "RealAudio" technology is available at: <http://www.RealAudio.com>

● **EZ Communications, a Fairfax, Virginia-based radio broadcaster is also putting all 21 of its stations on the Internet.** The PC-radio service uses the new Streamworks encoder and software to digitize the audio. A 14.4 kbps modem delivers AM quality audio. Faster modems permit CD-quality stereo. The technology will allow PC-users to tune into radio stations all over the world.

● **TST (Taylor Satellite Talk) Radio (Tulsa, OK) just started in June and already is expanding to the Internet "airwaves."** Subscribers can access the network's national talk shows via an 18-inch dish and an FM receiver. Beginning this month, TST's web site will offer four programming channels: (health, conservative, issues and "ask the experts.") TST will expand to ten Internet radio channels by 1997.

● **Look for the number of DBS (Direct Broadcast Satellite) television providers to increase next year** when EchoStar and AlphaStar joins DirecTV, USSB and PrimeStar. We heard that EchoStar will be renamed the Digital Information Sky Highway - or DISH for short. DBS is especially popular in rural areas where cable is unavailable. DirecTV and USSB each claim 700,000 subscribers; PrimeStar (operated by cable companies): 550,000. Sony has now joined RCA (Thomson Consumer Electronics Corp.) as a DBS equipment maker and prices could drop to the \$500 range next year. Thomson is al-

ready offering \$100 rebates to stimulate sales. And we hear that a \$499 unit is on the way from General Electric. Toshiba, Uniden and Hughes Network Systems are said to joining the fray. Both Sony and RCA have inexpensive monthly installment financing plans in place to make their satellite systems more affordable. (The \$15.00 does not include programming costs.) The idea here is to blunt PrimeStar's satellite equipment rental arrangement.

● **Meanwhile, Microsoft is quietly looking into delivering multimedia content from direct broadcast satellites (DBS).** The long range objective is to deliver a broadcast version of the Microsoft Network via satellite. Sony, DirecTV and Compaq Computer are said to be involved.

● **A new novel system automatically "fast forwards" your VCR through TV ads in videotaped movies!** A VCR equipped with "Commercial-Free" technology looks for tell-tale electronic signals in the TV transmission that indicate a commercial is starting or ending. The VCR then rewinds the tape and marks the signals that are 30, 60, 90 or 120 seconds apart - the standard length of a commercial. On playback, the VCR speeds up when it hits these markers. Needless to say, TV stations and advertisers are less than excited about the new technology!

● **Reading your radio! Don't be surprised if your 1996 automobile radio comes equipped with a digital readout.** The radio broadcasting data system (RBDS) allows FM stations to transmit messages on its subcarrier. The dashboard message will tell you the stations call letters, its format or any other information. The Electronic Industries Association will begin an advertising campaign in early 1996. That's when EIA says that RBDS will be available to 85% of the country.

COMPUTER STUFF

● **If your television set is starting to look like a PC, it is not accidental.** On August 26th, NBC Sports TV programming began using what appears to be a Microsoft Windows-95 Interface when it changes from one TV screen to

another. And the NBC SuperNet has already signed up to be a part of the Microsoft Network. They will offer NBC news, the Associated Press, interactive weather, sports and entertainment services.

● **Legal horse race betting from your home is being tested in Baltimore, MD and at Churchill Downs, home of the Kentucky Derby.** Viewers activate a special set-top box connected to a modem by inserting a "smart" authorization card. Using a five button remote control, bets are then transferred over the phone lines to your pre-established racing account. Your TV screen displays real-time wagering odds, weather conditions, information and race results. Handicapping information is fed to the subscribers' fax machine or printer over the TV's vertical blanking interval or the cable sideband. If the wager wins, the correct sum of money is posted to the user's account. At first, you will have to "cash out" at the track. The next generation version will allow you to collect at your bank or with a debit card. Seven states already permit home horse race betting! Another personal computer-based in-home betting system is being planned for Connecticut.

● **On-line casino and sports book betting is also available on the Internet.** The servers are located in the Caribbean - outside of the reach of U.S. regulators. Players send money in ahead of time or use credit cards. One particularly well done casino is the **Internet Casino** located in the Turks and Caicos Islands. It is owned by a Toronto businessman, Warren Eugene and supposedly hundreds of people have already registered to bet! The casino makes their money by simply taking 10% of the handle. (You lay \$11.00 to win \$10.00) Their graphics are among the best we have seen and the web presentation alone is worth a trip to: <http://www.casino.org> There is an online "Notice to Americans: At this time, you may not gamble at this casino." They urge U.S. residents to contact their congressmen since "Democracy does not exist in America." The Internet Casino also has free slot machines and black jack tables where you bet play money. This

casino has been under construction for some time and the latest feature to be added is ten different language buttons! They appear deadly serious about the venture.

● **Buying a new PC?** You are not alone! The home computer industry is growing at 25% a year. Last year the industry sold 48 million PCs. According to Dataquest, a research firm, the market will reach 100 million PCs in 1999. **Here is what the experts now consider to be an entry level personal computer.**

Processor:	Pentium/75 MHz
Cache:	256 K
Memory:	8 MB RAM
Hard Drive:	720 MB Enhanced IDE
CD-ROM:	Quad Speed Drive
Sound Card:	16 bit FM w/2 Speakers
Monitor:	15 inch
Modem:	14.4 Kbps. internal
Floppy Drive:	1.44 MB, 3 1/2"
Tape Backup:	(Optional)
Warranty:	1 Year On-Site Service

A year ago, this would have been the top-of-the-line! Cost is around \$2,000.

● **Business Week says Packard-Bell, Compaq and Hewlett-Packard will be the top three personal computer marketers this Christmas!** That's big news when you figure Hewlett-Packard PC's didn't even exist a year ago! Up until now, their claim to fame has been laser printers. HP introduced their new Pavilion line of PC's (eight models starting at \$1,499) just two weeks ago and plan to sell 250,000 by year end. Their main asset is their respected name, quality ...and their massive already-in-place distribution channels. The \$25 billion company also has huge buying power which generally means lower parts costs! In response, IBM and Compaq Computer Corp. recently slashed PC prices up to 25%. The cuts follow falling prices on Intel's. Pentium processors.

● **Who owns the most computers?** A 1994 study by the NTIA, (National Telecommunications and Information Administration) says that 39.1% of all Asian households have a PC. The least? Blacks: 11.1%. (Whites: 28.6%, Native Americans: 20.7%, Hispanics: 13.1%.) The *Wall Street Journal* reported that Asians also did the best on the high school Class of 1995 SAT (Scho-

lastic Assessment Tests) - especially in math. SAT scores are widely used for college entrance.

● According to a just published market study, **the number of subscribers to consumer online services grew 39% in 1994 ...and another 31% in the first half of 1995 alone.** There are roughly 8.2 million consumer online subscriptions in 7 million U.S. households, 10 million Americans are electronic bulletin board users; and at least 3 million access the Internet. Millions of consumers, however, are choosing to access the Internet directly -- particularly the *World Wide Web* -- bypassing commercial services altogether. The most used online services are e-mail, forums, bulletin boards, downloading, conferencing and chat services. Home PCs are used by an average of 2.3 users per household and average use runs 14.3 hours per week.

● **A start-up company called "Peapod" is betting that Internet users will order groceries online.** Trials are underway in Chicago (Jewel Food) and San Francisco (Safeway) where "Peapod" accounts for 20 to 30 percent of the grocery volume in stores that have signed up for the service! Customers are charged \$6.95 plus 5 percent of the total grocery bill per delivery within a ten mile radius of the store. (Delivery of a \$100 grocery order costs \$11.95.) An additional \$4.95 per month is added for online access to a database of 20,000 items. Customers are guaranteed grocery delivery within any given 90-minute time period they choose during a 12 hour workday. A 4 1/2-hour delivery window exists on week ends. Time Warner is testing a similar service called Shoppervision in Orlando, FL.

● **Information warfare tactics!** The August 21st issue of *Time* magazine says that the U.S. National Security Agency, along with top-secret intelligence units in the Army, Navy and Air Force have been researching ways to infect enemy computer systems with particularly virulent strains of software viruses that already plague home and office computers. Another type of virus, the logic bomb, would remain dormant in an enemy system until a predetermined time, when it would

come to life and begin eating data."

● **IBM is conducting a multimillion dollar computer virus study at its Thomas J. Watson Research Center.** Twenty or thirty new virus are sent to the center every week. The ultimate objective is to develop "...an automated immune system for computers patterned after biological processes." IBM also wants to be able to electronically mass immunize networked machines.

● **Newsweek (Aug. 21) reported that the telephone line that carries private Internet access in Iran had its line cut** by a division of the telecommunications ministry which runs a rival network. "The government is trying to keep an eye on the computer revolution" where chat rooms on its network are censored by the Ministry of Culture and Islamic Guidance. U.S. security experts are also concerned that Iranian terrorists could hack their way into top-secret data banks.

● **Did you know you need a license to be an Internet Access Provider in Hong Kong where alternative viewpoints are generally suppressed.** Hong Kong police presented warrants, searched their files, and confiscated equipment from seven of the eight internet providers located in the territory. The closure left about 10,000 customers without their usual access to international e-mail and other services. In addition, many of these internet providers expressed concern about the confidentiality of customer's e-mail stored on computers confiscated by police. The police informed the media that the raids were carried out because the services were not "properly licensed," and in some cases were "allegedly" involved in hacking offenses. Many of the providers had tried for weeks to secure these licenses from the government, but were not able to obtain the necessary forms.

● **Floppy disk storage to increase!** A *Byte* magazine article (August 1995) tells about **new technology that permits existing 3.5-inch floppy disks to be formatted to hold 120 MB of data using a floptical drive.** Three companies are involved: Compaq Computer (Houston, TX), disk maker 3M (St. Paul, MN) and Japan's Matsushita.

• **Electronic banking is back in the news!** Twenty-one corporations (including BankAmerica, Citicorp, and IBM) have formed a consortium to develop an electronic check payment system for use over the Internet. The goal is to reduce the more than \$50 billion spent annually processing 60 billion paper checks. A check gets handled an average of 12 times before being returned to the person who issued it.

The system will work like this. Users will pay for goods and services over the Internet by inserting a "smart-card" into their computers. After keying in the information, the bill and electronic payment is enclosed in a protective "electronic envelope" and sent to the merchant, who forwards it electronically to their bank for deposit.

The impact on the banking industry will be massive! A research study says that up to 450,000 bank jobs will disappear in the next five years ...and half of all U.S. bank branches will close within 10 years as customers turn to electronic transactions and PC banking.

But some banks aren't waiting. The Bank of America and NationsBank are already distributing a personal finance package to customers called *Managing Your Money* which allows them to download account information to their PCs. And the Bank of America plans to give some customers online read-only access to loan and account information this month and offer some Internet banking transactions next month.

Wells Fargo bank customers can access the Wells Fargo World Wide Web home page on the Internet and look at current balances on their checking, savings, money market and 23 other types of accounts. As soon as 100-bit encryption is in place next year, Wells Fargo will allow its customers to move money over the Internet.

The Justice Dept. wouldn't allow Microsoft to purchase Intuit, Inc.'s popular Quicken software which has 7 million users. For two months, Microsoft will now give their newly updated *Money* package away free (except for shipping charges) to online users. You will have to pay for it after Oct. 24th. The giveaway is to bolster Microsoft's position in personal finance software.

• **The big news in the consumer on-line world is the coming launch of both the AT&T and MCI Internet service.** MCI actually launched their Internet-based service earlier this year, but it was primarily only a home page with links to other existing services.

MCI has now invested \$2 billion into Australian media mogul Rupert Murdoch's News Corp. and plans are to combine MCI's marketing clout with the struggling (100,000 subscriber) Delphi online service and News Corp. content. Murdoch bought Delphi two years ago for \$15 million. He also owns Fox Broadcasting, 20th Century Fox, British Sky (DBS) television, TV Guide, Harper-Collins publishing and various newspapers - including the Times of London and the New York Post.

The still unnamed joint venture (it won't be called Delphi) will be led by former Prodigy No. 2 executive, Scott Kermit as its president and CEO. MCI has a contest going (\$5,000 cash to the winner) to name the new service. Anthea Disney, former editor of TV Guide will become editor-in-chief. The service which plans to hire 600 people is just now getting off the ground. And talks are in progress which could bring giant British Telecom and overseas markets into the venture. Unlike market leaders, America Online, CompuServe and Prodigy, the News Corp/MCI service is lodged on the Internet's World Wide Web. While entry into the web site is free, access to the various premium services will be by monthly subscription. Plans are to merge MCI Mail, the 200,000 user e-mail service into their online service.

AT&T's Internet entry is based on the **Interchange Online Network** that it recently purchased from Ziff Communications for \$50 million. AT&T will include its PersonaLink messaging system and the ImagiNation Network interactive games into their Internet online service. We heard that AT&T's 90 million customers will be offered a low price (\$300) PC that is already equipped with AT&T's Online Service. The new service will be beta tested this fall and will be commercially available early next year. Both the MCI and AT&T entries will use special branded versions of the Netscape Navigator browser.

• **Microsoft's much touted Windows-95 made its expected debut last Thursday!** Radio Shack, CompUSA and Egghead began selling it at midnight Wed., Aug. 23. We won't bore you with all of the worldwide festivities - suffice to say it was the biggest introductory promotion of a revised product in history! Even bigger than the new flavor of Coca-Cola a few years back. (We sure hope it does better!)

Estimates are all over the lot, but about \$1 billion of Win-95 was sold in the first three days alone. The street price for the \$109 upgrade version is around \$89. The Wall Street Journal and Associated Press reported that pirated versions of the beta release is being sold overseas ...in Great Britain, Europe, Russia and Asia at low prices. Pirated software in Hong Kong comes from mainland Chinese factories which are ignoring recently negotiated copyright infringement agreements.

Despite a Justice Dept. probe which was prompted by online competition, Microsoft turned on its news and information *Microsoft Network* (MSN) with a beginning stable of 140 content providers. MSN, a fee-based option of Windows-95, costs \$4.95 a month for three hours use; each additional hour is \$2.50. You can get to the Internet's World Wide Web from MSN. An option within an option, *USA Today* offers 3D graphics, news, weather and sports on MSN which will be free for a limited time.

Microsoft is ready for the phone calls and has beefed up their tech support staff by an additional 1,000 people. The first 90-days of support are free. Then it goes to \$1.95 per minute.

The agonizing question is, should you do Windows? The answer, of course is "Yes!" if you want to keep up. Virtually every new peripheral will come with a *Plug and Play* feature which Windows 95 supports. You might want to wait a while, however, to be sure there are no opening kinks. And be sure your PC is powerful enough to run Windows 95. Ideally, it needs a 486 processor, 8 MB of RAM, a 28.8 kbps modem, CD-ROM drive, sound card w/2 speakers and a huge hard disk. Windows 95 swallows 60 MB of hard disk space!

- Respected financial magazine, *Forbes* is another critic that is trying to get rid of the FCC. In a commentary, Editor-in-Chief Malcolm S. Forbes, Jr. says "Congress should do to the Federal Communications Commission what it did to the Civil Aeronautics Board 17 years ago. Abolish it." He believes the FCC has outlived its usefulness and "The days when airwaves were thought of as a scarce resource that had to be allocated and regulated by a federal authority and when telephones were thought of as a 'natural' monopoly are long gone." Forbes says the FCC has delayed communications and "...hobbled the development of cable television. ...Breakneck technology has obliterated natural monopolies and is increasing airwave capacity... By getting rid of the FCC, we will get a fantastic surge of innovation and competition. ...the FCC has become an instrument of special interests trying to shackle competitors and would-be competitors. This dinosaur should be put to sleep." (Aug. 14 issue, p.24)

- We understand that the United States Environmental Protection Agency (EPA) which (up until a month ago) was in the process of developing and publishing RF standards entitled "*Guidelines for Limiting Public Exposure to Radiofrequency (RF) Radiation*" has now dropped the project! The reason is that other groups (such as the IEEE) are also working on a similar positions. We also heard that there are industry groups that are very sensitive to guidelines that have the potential to alarm citizens. Updating the RF safety standards began in 1993 with an FCC Notice of Proposed Rulemaking.

- Bob Grove, WA4PYQ has an interesting editorial in the August *Monitoring Times* magazine entitled "*Internet Phone: The Successor to Ham Radio.*" DX voice contacts are now possible with "No license required. No code or theory test. No antenna. No expensive transmitter or receiver. And no static. All for about a dollar an hour." All you need is a multimedia PC, "telephone" software ...and the Internet.

NETSCAPE COMMUNICATIONS, The Inside Story!

You have probably never heard his name, but Marc Andreessen (only 24 years old) went from being a "paid by the hour" computer programmer to a net worth of \$58 million in less than a day! Some say he is the next Bill Gates! Marc is the co-founder of Netscape Communications, headquartered in Mountain View, California. He began at age nine by programming games on a Radio Shack computer.

Originally from Wisconsin, Marc has only been out of college 18 months. While at the University of Illinois at Urbana-Champaign, Andreessen headed up a team

of student programmers who worked for \$6.85 an hour to develop the Mosaic "browser." Few know that it was he that conceived the first graphical Web Browser in the fall of 1992 at the tender age of 22.

Mosaic transformed the dull, hard to manipulate black-and-white Internet text into a colorful, multimedia browser that is fun to use. The program accesses the World Wide Web, a section of the Internet that allows people and companies to publish information with fancy graphics, typefaces and sound ...and to move from one far-flung computer to another with the click of a mouse button.

The WWW is based on a system of hypertext ...highlighted words on a computerized document that instantly link you to other documents located on other computer servers somewhere in the world.

In short, a browser is to the Internet what an operating system is to a computer. There are even those also who believe that World Wide Web manipulation software will be the next dominant platform ...replacing the personal computer and its various operating systems.

About 200 million people are expected to use the Internet in 1999, up from 20 million in 1994, a ten times growth in five years! The worldwide Internet of about 35,000 computers is expected to generate as much as \$4.8 billion in revenue annually within three years.

Marc and his student team got little acknowledgment of their Mosaic programming efforts. It was always the University of Illinois and its National Center for Supercomputing Applications (NCSA) that got the recognition. It is no secret that he was unhappy with the way the University of Illinois took all the credit for Mosaic.

Jim Clark, a former Stanford University professor who was leaving Silicon Graphics (a company he also founded) to pursue other interactive technology ventures, e-mailed Marc and the two immediately hit it off. Clark asked Andreessen to come up with something that he could sell. And Marc proposed a "Mosaic Killer," a new and improved commercial version of his browser.

The next day, Marc sent an e-mail to his team back at the University of Illinois and they all signed up with Netscape. Jim Barksdale, a former IBM salesman and operations wizz at AT&T, McCaw Cellular and Federal Express, became Netscape's president and CEO. The management team became known as Marc, Clark and Bark. It sounded like the Marx brothers.

Six months later (last October), they offered free copies of their Mosaic version (code named "Mozilla") to Internet surfers. His idea was to get people to try it out in hopes that it might become the standard World

Wide Web browser. And millions did exactly that! They simply downloaded the point-and-click browser free from the Internet.

The browser, now called the Netscape Navigator, became immensely popular and it is now the most used WWW browser. Six of the nine million browsers in use today are Netscape Navigators, a 70% share of the market.

While home and school individuals got the browser free, commercial users will have to pay \$39.95 for it. Netscape will make its big money, however, from sales of secure and non-secure server packages that will sell for up to \$5,000 each.

Netscape has no patent protection for its browser since NCSA licenses Mosaic to anyone without cost. And well they should. NCSA was founded in 1985 and funded by the U.S. Government through its National Science Foundation using taxpayer money. Its high quality programs are thus public property.

Most "all-in-one" browser packages now contain Internet access and phone connection service. But you can still download a (supposedly temporary) copy of the Netscape Navigator for free from Netscape's Web site at "<http://www.netscape.com>" by clicking on the icon that says "download software."

Netscape originally was financed by a corporate consortium that included software powerhouse Adobe Systems and two newspaper publishers, Knight-Ridder and Time-Mirror in exchange for a small (10%) ownership position. Jim Clark has a 25% stake in Netscape; about the same percentage Bill Gates has in Microsoft.

On August 9th, Netscape went public. Did it ever! The Silicon Valley start-up is only a little more than a year old and has never made a profit. In fact, Netscape expects to lose \$4.7 million on revenues of \$48 million this year. Five million new shares were offered at \$28 each. They could have sold 100 million.

What the investment banks had valued at \$14.00 a share (and offered at \$28.00) immediately opened for trading at \$71.00. None of the offering was available to the public. It all had been pre-sold. At \$75.00, the trading frenzy started. The buyers (mostly large funds and money managers) began selling. By the end of the day, Netscape had backed off to \$58.25. The Netscape initial public offering was even a bigger success than Microsoft's IPO in 1986. By the end of the second day, Netscape Communications dropped to \$51.375.

Marc Andreessen, now Vice President of Technology, paid only \$10,860 for his one million shares - about 2.7% of the company. It was now worth \$58.25 million! Clark paid \$4.1 million for the 9.72 million shares he owns and Barksdale paid \$472,500 for his 4.2 million shares. Clark's \$4.1 million quickly became \$565 million. Barksdale's stake: \$245 million!

The question now is, will Netscape - now a \$2 billion company - continue to be the leading Web Browser. There is reason to believe that it may not. On-line consumer services are already offering their own web browsers based on Mosaic. And Windows-95 comes with its own free browser, the Internet Explorer which can do just about everything that Netscape can. But the Netscape Navigator can't sample all of the multimedia stuff that's expected to be stored on the Microsoft Network (MSN).

And Microsoft has a new Web content creation tool called Blackbird. Pages created with Blackbird can only be read by the Microsoft Explorer. But Blackbird created pages can also read traditional web pages.

Netscape also hopes to exploit a feature that permits electronic transactions and secure information transfer on the Internet using an encryption scheme. Netscape has two encryption versions, a 128-bit native and a 40-bit export variety. The foreign version is "16 million times" weaker since the United States does not permit export of sophisticated encryption schemes.

That is until a French hacker recently "cracked" Netscape's 40-bit code. He used an array of 112 computers trying different encryption keys for eight days until the right one decoded a test message. The U.S. will now allow a stronger 64-bit code to be exported. Every additional bit doubles the decoding difficulty. And the White House is even considering permitting still stronger encryption codes to be used overseas providing the code key is held by an escrow agent in case the government needs it to keep tabs on foreign terrorists. Code keys are matching streams of random bits generated to scramble and unscramble data.

There are those who believe Netscape will have the dominant operating system on the Internet. In any event, Netscape now has \$130 million in the bank, its founders and managers are all rich and everyone is wondering what the next step is. Hopefully they will make some money, but it certainly isn't assured. Remember, Netscape is trying to sell a browser product that bigger companies with deeper pockets are giving away.

As we see it, Netscape's strength lies in its servers and security. But who knows, with \$130 million to spend, maybe they will come up with something else novel. The future of the now \$2 billion dollar company really hinges on the creativity and imagination of a 24 year old programmer working at his first "real" job. Talk about pressure! But then, Bill Gates was even younger when he started Microsoft twenty years ago. You can access the Netscape General Store at: <http://www.netscape.com>.